NAVSHIPREPFAC YOKOSUKA LOCAL STANDARD ITEM

FY-00

ITEM NO: 099-52YO
DATE: 01 JUL 1999
CATEGORY: II

- 1. SCOPE:
 - 1.1 Title: Relief Valve; repair
- 2. REFERENCES:
 - a. None.
- 3. REQUIREMENTS:
 - 3.1 Matchmark valve parts.
- (V) "INSPECT PARTS FOR DEFECTS"
- 3.2 Disassemble, clean internal and external surfaces free of foreign matter (including paint), and inspect parts for defects.
 - 3.3 Repair valve as follows:
- 3.3.1 Straighten stem to within 0.002 inch total indicator reading. Polish stem to a 32 Root-Mean-Square (RMS) finish and remove raised edges and foreign matter.
- 3.3.2 Machine, grind, or lap and spot-in metallic disc to seat to obtain a 360-degree continuous contact.
- (V)(G) "INSPECT CONTACT"
 - 3.3.2.1 Inspect contact using blueing method.
 - 3.3.3 Dress and true gasket mating surfaces.
 - 3.3.4 Chase and tap exposed threaded areas.
- 3.4 Assemble valve installing packing, soft seats, and gaskets in accordance with manufacturer's specifications and new fasteners in accordance with Table One, or Table 2 for DDG 51 class.
 - 3.5 Hydrostatically test valve as follows:
- 3.5.1 Hydrostatic test equipment shall have the following capabilities:

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- 3.5.1.1 Manual overpressure protection release valve.
- 3.5.1.2 Self-actuated and resetting relief valve with a set point no greater than 100 PSIG above the test pressure or 10 percent above the test pressure, whichever is less.
- 3.5.1.3 Master and backup test gages with gage range and graduation shown on Table 3.
- 3.5.1.4 Protection equipment shall be accessible and test gages shall be located where clearly visible and readable to pump operator and inspector.

(V)(G) "SHOP TEST"

- 3.5.2 Shop test and set valve to lifting pressure.
- 3.5.2.1 Seat tightness test shall be accomplished for a minimum of three minutes. Allowable leakage: None.
 - 3.5.2.2 Purge valve of test medium.
 - 3.5.2.3 Install wire and lead lock seals.
- 3.6 Attach a metal tag to valve, stamped with the following information:
 - 3.6.1 Ship name and hull number.
 - 3.6.2 Valve number or identification.
 - 3.6.3 Valve lifting pressure.
 - 3.6.4 Date valve tested and set.
 - 3.6.5 Name of repair facility.

4. NOTES:

4.1 Test medium, seat tightness and lifting pressures will be specified in the invoking Work Item.

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TABLE ONE

VALVE BODY MATERIAL

	$\frac{1}{\text{Alloy Steel}}$	Carbon Steel	2/ Nonferrous
3/ Studs and Bolts to MIL-S-1222	Grade B-16	Grade B-16	Phosphor Bronze - Any Grade Silicon Bronze - Any Grade Nickel Copper - Class A <u>4</u> /
Nuts to MIL-S-1222	Grade 4 or 7	Grade 4 or 7	Phosphor Bronze - Any Grade Silicon Bronze - Any Grade Nickel Copper - Class A or Class B 5/
Socket Head Cap Screws	FF-S-86	FF-S-86	

- 1/ Alloy steel is of Composition A 2-1/4 percent Chromium, one percent Molybdenum, Composition B - 1-1/4 percent Chromium, 1/2 percent Molybdenum, and Composition C - Carbon Molybdenum.
- 2/ Nonferrous Alloy except Aluminum.
- 3/ Studs shall be Class 2 or 3 fit on the nut end and Class 5 fit on the stud end, except that a Class 3 fit with a thread locking compound may be used where temperatures do not exceed 250 degrees Fahrenheit. The thread locking compound shall conform to MIL-S-22473. Inspect Class 3 fit stud ends in accordance with DOD-STD-1371.
- 4/ Fasteners of Nickel Copper Aluminum Alloy shall be the only type used on sea chests and hull valves.
- 5/ Nuts of Nickel Copper Alloy conforming to QQ-N-281 Class A or B, or Nickel Copper Aluminum conforming to QQ-N-286 shall be the only type used on sea chests and hull valves.

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TABLE 2 VALVE BODY MATERIAL

	1/ Alloy Steel/Carbon Steel	2/ Nonferrous
3/ Studs and Bolts to MIL-S-1222	5/ For services up to and including 650 degrees Fahrenheit; Grade 5 steel	4/ 5/ Phosphor Bronze - Any Grade
	For services to 775 degrees Fahrenheit; Grade B7 or B-16	Silicon Bronze - Any Grade
	For services to 1,000 degrees Fahrenheit; Grade B-16	Nickel Copper - Class A
	For services in which JP-5, lubricating oil, or inflammable gas or liquid of any kind, regardless of pressure and temperature, which are within 3 feet of hot surfaces (above 650 degrees F) and where steel tubing is required; Grade 2, 5 of 8 steel	
	Bolting subject to sea water corrosion (other than hull integrity bolting; for hull integrity bolting see Note 4) Connections in contact with bilge regions. Where strength requires ferrous bolting and is exposed to the weather; Class A Nickel - Copper alloy to QQ-N-281 or silicor bronze to ASTM B98 with dimensions of MIL-S-1222. Where greater strength is required, use Nickel - Copper - Aluminum alloy QQ-N-286.	

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TABLE 2 (CONT)

Nuts to MIL- S-1222	5/ For services up to and including 650 degrees Fahrenheit; Grade 5 steel	Phosphor Bronze - Any Grade
	For service to 775 degrees Fahrenheit; Grade 2H or 4 steel	Silicon Bronze - Any Grade
	For services to 1,000 degrees Fahrenheit; Grade 4 steel	Nickel Copper - Class A or Class B 4/5/
	For services in which JP-5, lubricating oil, or inflammable gas or liquid of any kind, regardless of pressure and temperature which are within 3 feet of hot surfaces (above 650 degrees F) and where steel tubing is required; Grade 5 or 8 steel	
	Nuts subject to seawater corrosion. Connections in the bilge regions. Where strength requires ferrous material and is exposed to the weather; Class A or B Nickel Copper Alloy to QQ-N-281 or Silicon Bronze to ASTM B98 with dimensions to MIL-S-1222	

NOTES

- 1/ Alloy steel is of Composition A 2-1/4 percent Chromium, one percent Molybdenum, Composition B 1-1/4 percent Chromium, 1/2 percent Molybdenum, and Composition C - Carbon Molybdenum.
- 2/ Nonferrous Alloy except Aluminum.
- 3/ Studs shall be Class 2 or 3 fit on the nut end and class 5 fit on the stud end, except that a Class 3 fit with a thread locking compound may be used where temperatures do not exceed 200 degrees fahrenheit. The thread locking compound shall be in accordance with MIL-S-22473. Inspect Class 3 fit stud ends in accordance with DOD-STD-1371.
- 4/ Fasteners of nickel copper alloy shall be the only type used on sea chests and hull valves.
- 5/ Where these materials would constitute part of a galvanic couple, proposals for alternate materials shall be submitted for approval.

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TABLE 3 - MASTER GAGE SELECTION FOR HYDROSTATIC TESTS

Maximum Test Pressure (lb/in²g)		Master Gage Range*** (lb/in²g)		Master Gage Maximum Graduation Size (lb/in²g)
From*	To**	From	То	
5000 3000 2500 1500 1000 750 500 250 150 100 75 50 20	9500 5800 4800 2800 1800 1300 800 500 250 175 125 80 50 25 10	0 0 0 0 0 0 0 0	10000 6000 5000 3000 2000 1500 1000 600 300 200 160 100 60 30	100 30 30 20 15 10 10 5 2 2 2 1 1 0.5 0.2 0.1
5	7	0	10	0.1

NOTES:

- 1. Master gage and back-up gages shall track within two percent of each other.
- 2. System maximum test pressures shall be determined by applicable overhaul specification, building specification, or other governing documents.
- Values agree with the requirement that gage range shall not exceed 200 percent of maximum test pressure except for gage ranges 0 to 60 and below.
- Values allow for reading pressures up to relief valve * * setting.
- * * * Exceptions to the values given in this table may be approved locally by Design, based on an evaluation of test pressure, gage range, and specific application.

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